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FLAX

THE MONEY-MAKER

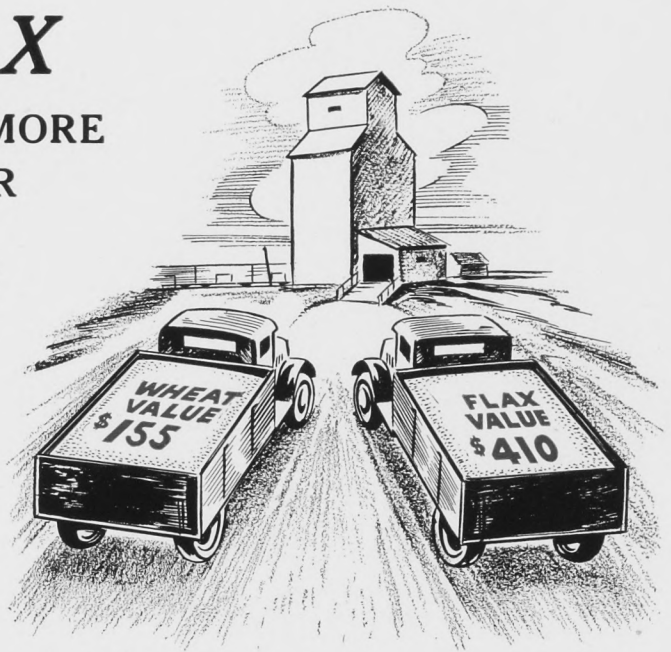


PUT SOME ACREAGE INTO *FLAX* THIS YEAR!

IF YOU ARE PLANNING TO GROW
FLAX, MAKE ARRANGEMENTS
FOR YOUR SEED IMMEDIATELY!

FLAX

HAS FAR MORE
VALUE PER
BUSHEL
THAN ANY
OTHER
GRAIN!



Revised edition. Published by

THE NATIONAL BARLEY AND LINSEED FLAX COMMITTEE
WINNIPEG, MANITOBA

*All information contained in "Flax the Money-Maker" has been approved by the Dominion,
Manitoba, Saskatchewan and Alberta Departments of Agriculture*

FLAX IS A GOOD CROP FOR PRAIRIE FARMERS

FLAX IS A PROFITABLE CROP

- has never been a surplus crop
- new uses are being discovered continually.

FLAX RATES WELL AS A CROP

- superior as a nurse crop, particularly with alfalfa
- in the past few years has been a good and early deliverable cash crop
- it is not hard on the land when properly rotated
- it takes no more out of the land than other grains
- it has no serious insect enemies
- with today's high prices it is extremely profitable.

THE PRODUCTS OF FLAX ARE USED BY EVERY FARMER

- in paint, linoleum, oilcloth, rubber tires
- in printer's ink and special oils
- linseed oil-meal as a feed for livestock not only provides important protein but has medicinal properties not found in other protein concentrates
- flax products are also important in paper manufacture and as an oil for shortening
- flax is an important crop to the Canadian economy.

THE TRUTH ABOUT FLAX

FLAX IS NOT A RISKY CROP

- flax has been much misunderstood in the past
- actually, good cultural practices and careful planning take the risk out of flax farming and make flax a most profitable crop.

WEEDS CAN BE CONTROLLED

- clean seed, planned rotation, good cultural practices and new chemical weed killers make weeds a minor problem.

IF PROPERLY HANDLED FLAX IS NOT HARD ON THE SOIL

- in the early years of homesteading, much flax was sown on spring prairie breaking and poor crops often resulted, not because flax was hard on the soil but because of lack of available plant food and moisture—a proper rotation plan is the easy solution
- wilt disease once made second crops impossible and led to the *false* conception that flax was hard on the land—wilt-resistant varieties have solved this problem.

FLAX STRAW IS NO LONGER A PROBLEM IN SOME AREAS

- in the Red River Valley it is a source of revenue
- other areas are, and will be, developed
- flax straw located near processing mills will continue to bring high prices this year.

SERIOUS DISEASES CAN BE CONTROLLED

- development of rust and wilt-resistant varieties have helped farmers overcome the worst diseases
- pasm is not serious in Western Canada
- further research will develop even more resistant varieties.

PLANNING PRODUCES PROFITS

- fields must be planned
- weeds must be anticipated
- approved cultural practices must be followed
- your reward?—high returns per acre—flax is a profitable crop.

CHOOSING THE FIELD

GOOD LAND IS NECESSARY

- flax merits the use of first quality land
- when choosing the field consider its fertility, freedom from weeds, drainage and past history—tilth and cropping practices must qualify your decisions here
- flax needs good soil and available moisture for maximum growth
- flax generally does not grow well on sandy or gravelly soils.

FERTILIZER

- if manure is used it should be applied to the crops *preceding* flax—if used for flax it leaves the land too open and may carry seeds
- fertilizers if properly applied often benefit flax—apply commercial fertilizers sparingly, about 25 lbs. per acre.

FLAX WILL NOT COMPETE WITH WEEDS

- give flax the best chance by selecting if possible, a field that is known to be relatively free of the many common annual weeds that bother it—otherwise use chemical sprays and other recommended controls.

THE SOIL SHOULD NOT BE WET

- well-drained soil allows early spring work which is necessary
- high land is apt to be freer from weeds.

THE PREVIOUS CROP IS IMPORTANT

- most recent investigations show that often better and cleaner crops may be secured *on properly prepared stubble land* rather than on summerfallow
- flax stubble should be avoided—rust, pasmo and browning diseases live over winter on flax straw, stubble and wilt in the soil
- on heavy soils the land should be either fall-plowed or one-wayed and surface cultivated the following spring
- on loam soils plowing and one-waying may be delayed until spring but cultivation should be done early to destroy one or two crops of weeds before seeding.

FLAX IN THE CROP ROTATION

FLAX CAN BE USED IN THE FARM ROTATION

- flax fits into rotation plans in exactly the same way as small grains: it is seeded, harvested and threshed with the same equipment
- advantages: it is not subject to the same diseases as cereals and many of the grain-destroying insects will not attack flax.

IT PAYS TO PLAN THE ROTATION

- these facts should be considered:
 - 1) flax needs moisture near the surface: in dry seasons summerfallow is suggested

- 2) for weed control, flax should sometimes be grown on first crop stubble land
- 3) flax makes a good nurse crop for grasses, alfalfa, red and alsike clover
—flax should not be used as a nurse crop for sweet clover as the growth of this legume interferes with flax harvesting
- 4) provided the land is disked and harrowed until level and firm, flax can be grown to advantage after breaking either tame grasses and clovers or prairie sod—better results are obtained however when breaking is done very early in the *previous* year, particularly after crested wheat grass and brome have been grown
- 5) flax needs warm soil for quick germination so should be sown on stubble rather than summerfallow where the soil is heavy and cold.

A SINGLE ROTATION CANNOT BE RECOMMENDED

- the type of rotation depends upon the characteristics of the farm, type of farming and presence of weeds
- consult your Agricultural Representative of the Provincial Extension Service when planning your crop.**

FLAX DOES NOT CONTROL SOIL DRIFTING

- where soil drifts, use small fields (about 20 acres each) sown in strips between other crops.

PREPARING THE SEED BED

A FIRM SEED BED IS NECESSARY

- a firm, fine, level seed bed is needed
- a properly prepared bed produces greater yields.

FLAX CAN BE GROWN ON BREAKING

- best results are obtained when breaking has been done the previous summer: this allows better soil rotting and levelling of the surface.

FLAX MAY BE SOWN ON SUMMERFALLOW

- summerfallow should be as free from weeds as possible
- immediately before seeding, level soil with a drag-harrow possibly preceded by double-disking or duck footing to kill the weeds. **NOTE**—this is not recommended where there is danger of soil drifting as in Saskatchewan

- if disking and cultivating are necessary it should be as shallow as possible
- most summerfallows contain weed seeds: try to eliminate at least one crop of weeds
- after harrowing, weeds usually take two weeks to start and seeding may be delayed until May 15th or 20th.

FLAX WILL GROW ON STUBBLE LAND

- this practice has been increasing greatly because of:
 - 1) the efficiency of sowing with a one-way with a seed attachment
 - 2) on stubble, soil is warmer and growth quicker than on fallow
 - 3) weediness of most summerfallows requires more weed control tillage in spring
- stubble should be disked lightly in the fall, soon after harvest to start the weeds, unless soil is inclined to drift
- if no fall cultivation is done, disk the land lightly in the early spring to cover weeds and encourage germination: seeding may then be delayed until the third week in May.

FLAX CAN BE SOWN WITH A TILLER COMBINE

- this practice is increasing rapidly because:
 - 1) new seeder attachments are more accurate than old worn drills
 - 2) spreading and scattering of seed by the one-way allows more complete soil coverage by the flax plants
- if using a tiller combine, do not plant the seed too deeply but have the soil packed immediately after seeding.

CHOOSING THE VARIETY

FOR GREATER YIELDS SOW ONLY PURE SEED

- have seed cleaned and treated—it pays
- ask your Agricultural Representative about the varieties best suited to your locality
- buy from a reliable source to be sure of the variety you want
- seed should be adapted to the locality, tested for germination, cleaned and treated**

- registered and certified seed insures varietal purity
- if buying seed, contact your University, Extension Service or Field Crops Commissioner.

VARIETY IS IMPORTANT

ROYAL—high-yield, rust-resistant, developed at University of Saskatchewan, recommended for all areas where rust is a hazard, good for long season areas, moderately resistant to wilt and spring frosts.

REDWING—established, dependable, adapted to more northern regions, moderately resistant to wilt, less susceptible to rust than Bison, consistently outyields later varieties in all northern and north-central areas in Alberta.

VICTORY—white blossoms, large brown seeds, matures with Royal, yields well but stands irregular in height and maturity, resistant to wilt and rust but quite susceptible to pasmo.

VIKING—large, good, yellow seeds, resembles Royal in lateness, yields less, much shorter straw and is very susceptible to pasmo.

BUDA—wilt-resistant, moderately rust-resistant, limited use in Western Canada and pure seed is hard to obtain.

BISON—highly wilt-resistant, very susceptible to rust, lower yield compared with Royal, should not be grown where rust is a problem, is most satisfactory variety for southern Alberta.

Three new varieties were licensed for sale in 1947 but were available only in limited quantities. A greater supply will be available for seeding in 1949.

DAKOTA—highly resistant to wilt and rust, moderately susceptible to pasmo, medium-sized brown seed, matures earlier and more uniformly than Royal but is slightly lower in yield.

ROCKET—maturity of Royal, rust resistant and moderately resistant to wilt and pasmo, recommended for southern Manitoba.

SHEYENNE—an early variety maturing with Redwing but more disease resistant, recommended for northern areas.

FLAX SEED SHOULD BE TREATED

- nearly all western flaxseed requires treatment: minute cracks in the seed coats allow micro-organisms in the soil to kill the seed before germination takes place unless chemical dusts are used
- use mercuric dust such as Ceresan, 1½ ounces per bushel
- do not treat seed less than 24 hours or more than one month before seeding.

EARLY PLANTING

METHOD OF SEEDING IS IMPORTANT

- sow flax when soil is moderately warm, usually about the second week in May or about 10 days to 2 weeks after wheat seeding begins
- cold soil retards germination and emergence and encourages weeds
- if early May is cold, delay flax seeding until weather is reasonably warm
- if seeding is delayed until weeds are killed, remember that most flax takes longer to mature than Marquis wheat
- do not delay seeding to avoid frost as the disadvantages of late seeding outweigh the advantages
- generally the best seeding time is between May 10th and 20th
- when it emerges, flax is generally fairly resistant to frost, resistance then decreases for a few days and thereafter increases again.

FLAX SHOULD BE SOWN EARLY

- ordinarily before May 20th
- flax sown on stubble usually ripens sooner than a summerfallow crop and can therefore be sown later.

RATE OF SEED AFFECTS YIELD

- for a variety like Royal with medium-sized seed, use 25 to 40 pounds of seed per acre
- a sound basis is 28 pounds per acre for good, medium-size seed treated with mercuric dust: modify this rate to suit conditions—increase where seed is large, germination low, soil extra rich or moist, seeding late, soil weedy or where thinning from cutworms, frost or harrowing is anticipated
- in Alberta, irrigated land requires heavier seeding than dry land: most irrigation farmers sow up to 40 pounds per acre.

SEED SHOULD NOT BE SOWN TOO DEEPLY

- the flax seedling is weak and cannot push through a tight, hard soil or crust
- sow flax in moderately firm, moist soil, no deeper than is necessary to get uniform germination
- 1½ inches deep is good for medium-light to medium-heavy soil
- be sure to plant at a *uniform* depth: attachments to make this possible are now available for most double-disk drills
- if a one-way with drill attachment is used, seeding may be slightly deeper but must be uniform.

KEEPING OUT WEEDS

FLAX DOES NOT MAKE LAND WEEDY

- however, because flax affords little shade, weeds present in the soil grow more readily
- sow early, select clean fields, use clean seed, proper crop rotation and shallow spring work.**

WEEDS GREATLY REDUCE THE VALUE OF STRAW

- cocklebur make the straw useless for paper manufacturers
- reduce weeds to increase value, the greater return makes it worthwhile to take real preventative measures.

SPRAYING IS ADVISED

The following authoritative article on "MODERN WEED CONTROL METHODS" has been prepared by Mr. H. E. Wood, Chairman of the National Weeds Committee.

Weeds are a definite enemy of flax. In addition to crowding the crop to a point where yields are often greatly reduced, weeds add to the difficulty of harvesting and cause heavy dockage. Spraying can be of major benefit.

A real ray of hope to flax growers appeared with the introduction into Western Canada in 1944, of a "selective" chemical known as Sinox. This chemical, applied as a spray to the growing flax crop, destroyed most broad leaved annual weeds without damage to the crop. Following its use, most fields registered a marked increase in yield. Apart from requiring considerable water per acre (about 65 gallons, since reduced to about 40) and the need for rather expensive spray equipment, indications pointed to an increasing use of Sinox and a similar product—Dow's Selective Weed Killer. Then the new hormone weed killer 2,4-D appeared.

When first introduced in 1945, 2,4-D was not expected to be suitable for use on flax. However, following extensive experiments and use by a considerable number of farmers during 1947, the Weed Conferences held late in the year at Regina and Topeka, Kansas, went on record as favoring its use for flax in 1948, with proper safeguards as to rates and period of application. Based on trials conducted by the Minnesota Experimental Station, it was found that susceptibility of flax to 2,4-D was to some extent at least dependent upon variety. The varieties common to Western Canada—Royal, Redwing and Sheyenne—were most tolerant, followed closely by Dakota. However, Crystal and Minerva (not licensed in Canada) were very susceptible both to yield and percent and quality of oil.

The advantages favoring the use of 2,4-D on flax briefly are: its cheapness (applied with as little as four gallons of water per acre) and its effectiveness on a wide range of weeds.

Recommendations for the use of 2,4-D on flax are as follows:

1. Do not apply until the flax has reached a height of four inches or after commencing to bloom.
2. Keep within the recommended rates of application, these being:

	In Ounces Acid per Acre	
	Susceptible	Less
	Weeds	Susceptible
		Weeds
Sodium salt.....	5 - 8	7 - 10
Amine Salt.....	3 - 6	5 - 6
Ester.....	2 - 4	3 - 4

NOTE—As the weed growth advances the dosage should be increased. Where the esters are used at the higher dosages, some damage to the flax may result.

CONTROL OF INSECTS AND DISEASES

INSECTS ATTACK FLAX

- flax has fewer insect enemies than most grains
- grasshoppers, flax boll-worm, wire-worms, beet-web-worms, bertha-army-worms, and cutworms are the most important insects attacking flax (the last two occur only occasionally in destructive numbers and may be killed with poisoned bait)
- for beet-web-worms, bait is spread in furrows, plowed ahead of the advancing worms
- use poisoned bait for grasshoppers
- no economical control is known for flax boll or wire-worms and the latter cannot be poisoned
- although wire-worms injure flax much less than wheat it is best not to sow flax in fields which are badly infested.

DISEASES CAN BE CONTROLLED

- flax rust produces orange or reddish-yellow spots on leaves, stems, and bolls, later turning them black

- localized outbreaks can be reduced by burning or by plowing down the flax stubble and plant refuse during the fall or early spring and by seeding the new flax crop as far as possible from the previous year's fields
- seed should be thoroughly cleaned
- the only real solution is to sow only rust-resistant varieties: Viking is immune, Royal and Dakota are fairly resistant, Redwing and Buda moderately susceptible, Bison is very susceptible
- wilt is controlled by the use of wilt-resistant varieties and to some extent by proper rotation of crops
- Viking, which is very susceptible to pasmo, is not recommended in Manitoba where pasmo has been present for some years
- "Browning Disease" or "Stem Break," is controlled by treating seed with mercuric dust and by not following flax with flax on the same field.

HARVESTING AND MARKETING

FLAX IS NOT DIFFICULT TO HARVEST

- with proper equipment, flax is no harder to harvest than other grains
- cash return per acre of flax will probably exceed that from other grains yet there are fewer bushels of flax to handle—therefore fewer trips to market
- prompt harvesting reduces weed growth: flax may be harvested when most of the stalks and bolls are brown without reducing yield or quality of seed and straw.

ADJUSTMENTS TO IMPROVE HARVESTING AND THRESHING

- a good, sharp knife with smooth-edged sections is essential
- normally flax should be cut from 4 to 6 inches high but if straw is not to be used, long stubble may be left
- if straw is marketable, cut very low to insure a long stem
- if harvested with a grain binder in the moister areas (Manitoba), stook flax immediately in loose bundles to allow for drying
- combining is the accepted method for best harvesting
- straight combining is quite satisfactory where fields are free of weeds and second growth
- if fields are weedy and the crop late, delay combining until frost has killed the weeds

- the advantage of swathing and combining is that the crop can be cut at the proper stage of maturity with no loss of bolls: if weeds are present they will dry out and cause little trouble—combining can be done on warm days and better threshing will result
- if flax is combined, increase the cylinder speed; if the cylinder is of the rub-bar type, use the attachments recommended by the manufacturer
- adjust the combine frequently according to the ease of threshing to break all the bolls and prevent seed from being thrown over
- for best advice on threshing or combining, consult the Agricultural Engineering Department in your Extension Service or University.

FLAX IS NOT EXPENSIVE TO MARKET

- in North America the demand for flax is greater than the supply and Europe is in the market for seed, therefore selling flax is no problem
- flax straw is now a source of profit in some areas
- if an ordinary separator is used for threshing, build a stack that will shed water
- if the crop is combined, gather up the straw either by raking into bunches or using a pick-up baler
- if straw is bunched for sale, ship it to the plant as soon as raked to avoid toughening or spoilage.

FLAX FOR THE PRAIRIE PROVINCES

- increasing demand for flax make it an increasingly important crop
- the best place to grow flax is in the cool Prairie Provinces
- 95% of Canada's flax is grown in Manitoba, Saskatchewan and Alberta
- flax is important, not only because of its high monetary value but also because of its use in scores of products used by every farmer
- flax has a bright future—Canadian, American and European demands are high
- flax can easily be your most profitable crop.

ACKNOWLEDGMENTS

The compilers of this book wish to acknowledge that much of the text has been taken directly from the following publications:

“Increasing Farm Incomes With Flax”—published by the Flax Development Committee in the United States.

“The Growing Of Flax, Agriculture Extension Bulletin No. 62”—published by the University of Saskatchewan, Saskatoon, Sask.

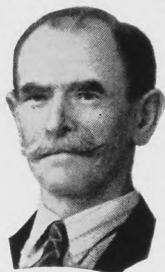
“Flax Production In Alberta, Circular No. 40”—published by the University of Alberta, Edmonton, Alta.

“Flax Seed, Special Pamphlet No. 1”—published by the Agricultural Supplies Board, Ottawa, Ont.

“The Production of Flaxseed in Canada”—Farmers Bulletin 23, Dominion Dept. of Agriculture, March, 1946.

Copies of the last four publications may be secured by writing to the addresses indicated.

CANADIAN FARMERS LIKE FLAX



MORE PROFITABLE THAN WHEAT GROWING

F. Van Ryssell, from Oakbank, Manitoba, says: "I have grown Flax for the past 15 years with satisfactory success. My average yield is 15 bushels per acre. During the last three years I have combined my Flax and have got up to Grade 1 C.W. or equally as good from stooks, I find that the sale of Flax plus a revenue for Flax straw is more profitable than wheat growing. I shall continue to grow Flax as it fits in well with my labor distribution and rotation program."

HIGH RETURNS FROM FLAX

"In my farming experience I have realized high returns per acre on my flax crop," says H. Feldbusch, from Vauxhall, Alberta. "In 1943 I sowed 85 acres and harvested 2110 bushels, an average of 25 bushels per acre; in 1944, 10 acres yielded between 34 and 35 bushels per acre and my total acreage again averaged 25 bushels and for that kind of money, flax becomes a mighty important cash crop on my farm."

"If there is any secret to my success with Flax, it is this: good clean ground, dependable seed and proper planting methods."

"It is important to seed flax early for it is a poor weed fighter. I have found that with early planting, it will get ahead of the weeds."



25 BUSHELS PER ACRE

"We have found flax a very profitable crop," reports H. B. Somerville, from Hartney, Manitoba. "Last year we seeded 2,500 acres and the yield averaged around 15 bushels per acre. One field of 120 acres averaged 25 bushels. On second and third crop land our Flax averaged \$35.00 per acre as compared to wheat on our best ground first crop, averaging \$24.00 per acre. We find that Flax stands more drought, hail and windstorm damage, heat and unfavorable conditions than any other crop we have grown. We generally spring plow and harrow early and about three or four weeks later cultivate or one-way disc it again, and pack and seed and repack the ground. This cleans up the seed bed and produces a moist, firm, seed bed for shallow planting which is very necessary."



MOST PROFITABLE CROP IN 38 YEARS

A. Summach from Asquith, Saskatchewan, states: "The most profitable crop that I have produced in my 38 years of farming was a crop of Royal Flax: a record yield of 30 bushels to the acre on several hundred acres."

"Flax is a crop that responds to good farming practices. Well-drained, reasonably clean ground should be selected. Seed shallow and uniform but deep enough to be into the moisture from 1 inch to 1½ inches deep."



FLAX EASIER TO HARVEST

J. D. Dovell, Langbank, Sask., writes: "I like growing flax. I find it much easier to harvest and there is not so much overhead expense."

*For detailed information about growing **FLAX**
contact your local
representative*



KEY:

★ Universities

● Experimental Stations

▣ Agriculture
Representatives